

Name LEY

Date _____

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SOLVING EQUATIONS WITH RADICALS

1. $x^2 = 9$

$$x = \pm 3$$

2. $x^2 - 4 = 12$

$$x = \pm 4$$

3. $2x^2 + 1 = 99$

$$x = \pm 7$$

4. $x^3 = 8$

$$x = 2$$

5. $x^3 + 2 = 29$

$$x = 3$$

6. $4x^3 - 7 = 493$

$$x = 5$$

7. $x^4 = 16$

$$x = \pm 2$$

8. $x^5 = 32$

$$x = 2$$

9. $3x^4 - 43 = 200$

$$x = \pm 3$$

10. $\sqrt[3]{x+1} = 7$

$$x = 342$$

11. $\sqrt[3]{x} = 64$

$$x = 64^3 = 262,144$$

12. $\sqrt[4]{x-3} = 2$

$$x = 19$$

13. $\sqrt[3]{2x} = 3$

$$x = \frac{27}{2} = 13.5$$

$$14. \frac{\sqrt{x+4}}{2} = -5 \cdot 2$$

$$\sqrt{x+4} = -10$$

no real solution

$$15. \frac{\sqrt{x+4}}{-2} = -5(-2) \quad (\sqrt{x+4})^2 = (10)^2$$

$$x+4 = 100$$

$$x = 96$$

$$16. \frac{\sqrt[3]{x}}{-4} = 54(-4)$$

$$x = (-216)^3 = 10,077,696$$

$$17. \frac{\sqrt[3]{x}}{4} = 54(4)$$

$$x = (216)^3 = 10,077,696$$

$$18. 3\sqrt{x-4} = -12$$

no real solution

$$19. -3\sqrt{x-4} = -12$$

$$x = 20$$

$$20. -4 + \sqrt[3]{x} = -2$$

$$x = 8$$

$$21. (\sqrt{3+\sqrt{x}})^2 = (4)^2$$

$$3 + \sqrt{x} = 16$$

$$\sqrt{x} = 13$$

$$x = 169$$

$$22. 2(x^5 - 1) = 0$$

$$x = 1$$

$$23. 3(x^2 + 5) = 21$$

$$x = \pm \sqrt{2}$$

$$24. 5\left(\frac{x^2}{2} - 1\right) = 85$$

$$x = \pm 6$$